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RECORD OF ORAL HEARING  
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

*Ex Parte* DAVID JOHN BUTCHER, STEPHEN JOHN HILL,  
HEDLEY JAMES FRANCIS, VLADIMIR VASEKIN,  
and ANDREW CHRISTOPHER ROSE

Appeal 2009-005640  
Application 10/807,498  
Technology Center 2100

Oral Hearing Held: January 14, 2010

Before LEE E. BARRETT, JEAN R. HOMERE, and  
JAMES R. HUGHES, *Administrative Patent Judges*.

APPEARANCES:

ON BEHALF OF THE APPELLANT:

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1           The above-entitled matter came on for hearing Thursday,  
2   January 14, 2010, commencing at 1:25 p.m., at the U.S. Patent and  
3   Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Jack  
4   Becker, a Notary Public.

5           THE USHER: Calendar No. 50, Appeal No. 2009-5640, Mr. Spooner.

6           MR. SPOONER: Good afternoon.

7           JUDGE BARRETT: Good afternoon.

8           MR. SPOONER: As she's indicated, my name is Stanley Spooner  
9   representing the Applicant, Arm Limited, a U.K. company that designs  
10   computer chips, memory programs, data processors, et cetera. In the field of  
11   the present invention, it is known to provide mechanisms for checking  
12   memory accesses being made to memory locations specified by a null  
13   variable. This is discussed in Applicant's Specification, page 2, lines 10 to  
14   15. Such mechanisms are provided with a virtual machine software  
15   implementation with null detection taking place in the software. That's the  
16   way it's generally done. Arm uses a slightly different process, they use a  
17   hardware block that can provide null value checking and the generation of  
18   the appropriate null value exception when necessary. That's in the  
19   Specification, page 2, lines 17 to 23.

20           Unfortunately, a problem with such hardware systems occurs when  
21   you have to map. There's some difficulties in mapping stacked-based  
22   programming languages into register file-based processors in an efficient  
23   manner. What they normally do is they use what they call adjust-in-time  
24   compilation and adaptive translation. Basically, they take non-native code,  
25   translate it into native code, and store it in memory. Unfortunately, that  
26

1 requires a fair amount of memory space which, of course, in, in  
2 microprocessors is a deficit. It's desirable to reduce memory storage  
3 requirements. This is all discussed in Applicant's Specification, page 2, lines  
4 25 to 34. So that's the problem, trying to reduce the storage space  
5 requirements of these hardware-based systems.

6 All right, the claims, and we have four independent claims, 1, 16, 31,  
7 and 46, and the Examiner in his argument basically takes the position that  
8 independent claims 16, 31, and 46 all have the same arguments as Claim 1.  
9 So I'll concentrate on Claim 1, but the arguments would apply to those other  
10 independent claims and, of course, all the dependent claims thereon. The  
11 Claim requires that we have processing logic operable to perform this data  
12 processing operation. That's probably pretty clear that the cited prior art has  
13 to have that as well. We also provide a very specific instruction decoder,  
14 and it has three characteristics that are all claimed in the Claim. Firstly, the  
15 instruction decoder must operate in a particular manner in response to a  
16 memory --

17 JUDGE HOMERE: Let me -- counselor, counselor --

18 MR. SPOONER: -- access instruction.

19 JUDGE HOMERE: Counselor, I have a question for you. Let me  
20 stop you right there. I have a question for you regarding the meaning of  
21 operable to is. What does that encompass essentially? Is it actually doing  
22 something or is it capable of doing something?

23 MR. SPOONER: It must be capable when operating to do that thing.

24 JUDGE HOMERE: Okay, so it's actually doing --

25 MR. SPOONER: If you don't plug it in, it's not working.

26

1 JUDGE HOMERE: Okay.

2 MR. SPOONER: So when it operates, it has to do that thing.

3 JUDGE HOMERE: Therefore, if you have a computer that's sitting,  
4 that's not operating, but that has these components in there, therefore, you  
5 would not need to have the, the -- all the other clause that follows the  
6 supposing -- logic in order to meet those limitations? Or --

7 MR. SPOONER: I don't understand your question.

8 JUDGE HOMERE: You have -- let's take for instance you have a  
9 processing logic operable to perform the data processing operation, right?  
10 Okay. Let's say that that is a processor, right?

11 MR. SPOONER: Okay.

12 JUDGE HOMERE: Okay. Now, let's say that we have a processor  
13 that's not actually performing this function, but we know that a processor is  
14 generally capable of processing operations. Would that generally meet that  
15 limitation?

16 MR. SPOONER: If when you plug in that processor it performs the  
17 data processing operations, then, yes, it would meet the limitations of the  
18 claim.

19 JUDGE HOMERE: Okay.

20 MR. SPOONER: Okay? Right, but what I was talking about is the  
21 instruction decoder, and it has to have three specific characteristics. It's got  
22 to operate in response to a memory access instruction. If it gets the memory  
23 access instruction, it then has to do a couple things. It has to "compares a  
24 base register value stored within a base register specified by a base register  
25 field of said memory access instruction." So it compares that with a  
26

1 predetermined null value, so it's got to do that operation as well. And if,  
2 during that comparison, the base register value matches the predetermined  
3 null value, then it triggers branching to execution of a null value exception  
4 handler. In other words, it's got, it's got to not only be a decoder, but it's a  
5 very specific type of decoder.

6 And this is where we have issue with the Examiner's conclusions  
7 because he is citing -- in general, he is citing two references that have  
8 nothing to do with this. And he's just waving his hand and saying  
9 somewhere within these two or three columns of this prior art reference  
10 there is something that discloses this. But we've asked him repeatedly to  
11 point out where those three features of the decoder are shown in the prior art.  
12 Now, the closest he comes to that is his table in the Examiner's Answer, but  
13 even that, as we point out in the Reply Brief, is deficient. It does not address  
14 all of the features of the Claim. So if they're not there in any of the cited  
15 prior art references, I don't see how you can combine them.

16 JUDGE BARRETT: Now, the instruction decoder is not any specific  
17 piece of hardware, I mean, as claimed, is that right? I mean, it could be a  
18 combination of hardware and software. I mean --

19 MR. SPOONER: Sure, but it --

20 JUDGE BARRETT: -- it's a large box that could have various  
21 components --

22 MR. SPOONER: Right.

23 JUDGE BARRETT: -- and it could have -- the trigger -- instruction  
24 decoder function which all computers have to have --

25

26

1 MR. SPOONER: It has to have an instruction decoder function, but it  
2 has the very specific instruction function that's specified in the Claim.

3 JUDGE HUGHES: All right, this decoder that's specified in the  
4 Claim, you're not -- I think where you're going is you're not teaching any  
5 specific structure for that decoder, are you, in the Claim?

6 MR. SPOONER: Other than --

7 JUDGE HUGHES: Is it claimed functionally by what it does?

8 MR. SPOONER: But it's claimed as a structure which accomplishes  
9 those functions, but it's not means plus function --

10 JUDGE HUGHES: I was just going to --

11 MR. SPOONER: -- because we haven't used means.

12 JUDGE HUGHES: -- ask is means plus function claimed?

13 MR. SPOONER: Right, no, we haven't used means, and those of  
14 ordinary skill in the art I think will understand, you know, the structure that's  
15 involved.

16 JUDGE HUGHES: So this could be accomplished entirely in  
17 software?

18 MR. SPOONER: Could be. I think the Specification discloses  
19 structure which does that.

20 JUDGE HUGHES: Yeah, but you're not using means to claim  
21 measurements?

22 MR. SPOONER: Exactly, right.

23 JUDGE HUGHES: All right. So this is -- this isn't really just a  
24 decoder. It's doing more than a standard decoder --

25 MR. SPOONER: Absolutely.

26

1 JUDGE HUGHES: -- every processor has an instruction decoder as  
2 Judge Barrett pointed out.

3 MR. SPOONER: Absolutely.

4 JUDGE HUGHES: So you have a decoder with additional  
5 functionality, would you agree with that?

6 MR. SPOONER: Exactly, sure.

7 JUDGE HUGHES: Okay, and I guess as a first step, are you -- is  
8 there anything in this Claim language that says that the processing function  
9 and this additional decoding function have to be separate? I mean do these  
10 have to be separate structural entities?

11 MR. SPOONER: I don't think so.

12 JUDGE HUGHES: Okay, so they could be all in one processor?

13 MR. SPOONER: They could all be in one block or blocks.

14 JUDGE HUGHES: Okay. All right, referring to Click, do you -- does  
15 Click disclose a processor in general or teach a processor?

16 MR. SPOONER: Sure.

17 JUDGE HUGHES: And what about a decoder?

18 MR. SPOONER: I don't think it discloses the decoder, and, in fact, I  
19 think the Examiner admits that it doesn't.

20 JUDGE HUGHES: All right, forgetting what the Examiner has or  
21 hasn't admitted for a moment --

22 MR. SPOONER: Because it's unclear at this point.

23 JUDGE HUGHES: -- my question is you talk about a decoding  
24 function here, and you claim it functionally. Does Click's optimizer meet  
25 that? I mean it decodes, it translates?

26



1 MR. SPOONER: I don't believe it does.

2 JUDGE HUGHES: Okay.

3 MR. SPOONER: Because we're not -- you keep trying to pigeonhole  
4 it as claiming it functionally, but I prefer to say we're claiming the  
5 interrelationship of elements.

6 JUDGE HUGHES: I understand you're claiming the interrelationship,  
7 and then you turn around and you say the Examiner explains the  
8 interrelationship but doesn't explain the structure. So you have to take -- you  
9 can't have it both ways.

10 MR. SPOONER: I don't think he's explaining interrelationship.

11 JUDGE HUGHES: Okay.

12 MR. SPOONER: He hasn't shown that that's there.

13 JUDGE HUGHES: Okay. Does -- I think if you refer to Click,  
14 doesn't it teach an optimizer that handles exceptions? If you refer to column  
15 1, lines 33 through 37 and 41 to 43, it teaches that that was known in the  
16 prior art.

17 MR. SPOONER: Well, it certainly references an optimizer, yes, sir.

18 JUDGE HUGHES: Okay. And what about branching to execute null  
19 value exception handlers? That seems to be disclosed at column 2, lines 20  
20 through 24.

21 MR. SPOONER: Yes.

22 JUDGE HUGHES: Okay. So -- well, you know, your position is  
23 strictly that this -- that Click doesn't disclose a decoder that does a  
24 comparison. I'm trying to narrow your argument down here, and I  
25 understand where you're going because --  
26

1 MR. SPOONER: Right, there's three things that Click doesn't show  
2 and Smith doesn't show.

3 JUDGE HUGHES: All right, well, let's worry about Click for the  
4 moment.

5 MR. SPOONER: Okay.

6 JUDGE HUGHES: You're saying that it doesn't do -- it doesn't show  
7 a comparison, if I'm understanding you correctly --

8 MR. SPOONER: Right.

9 JUDGE HUGHES: -- to a base register value, but it does say that it's  
10 well-known in the art to do that. I mean that's -- Click goes -- explains  
11 several times that this null value handling procedure, especially in Java, is  
12 well-known in the art, okay?

13 MR. SPOONER: Sure, and -- but the portion of Click that he refers  
14 to, column 2, lines 19 to 21 or so, relates to the prior art. The other portion  
15 of Click that he refers to for the same thing is his own invention, and that's  
16 over at column 3 --

17 JUDGE HUGHES: Right, I understand that --

18 MR. SPOONER: -- so he's --

19 JUDGE HUGHES: -- but where -- if it's known in the art, then one of  
20 skill in the art would understand how to do -- would understand that it  
21 incorporates this null handling procedure, exception procedure. I -- you  
22 know, I'm -- from reading your Argument, it seems like you're saying it  
23 doesn't teach that, and I don't see how --

24 MR. SPOONER: You're saying that --

25

26

1 JUDGE HUGHES: -- if it's known in the art, then this invention  
2 incorporates it. He's explained in the background of the invention that --

3 MR. SPOONER: No, sir. No, sir. No, sir.

4 JUDGE HUGHES: All right.

5 MR. SPOONER: The fact that it's known in the art doesn't mean that  
6 the invention -- that Click's invention includes it. It means that it's known in  
7 the art.

8 JUDGE HUGHES: All right.

9 MR. SPOONER: The Click -- I mean, it may be --

10 JUDGE HUGHES: So, if it's already known in the art --

11 MR. SPOONER: Excuse me, just let me finish. It may be known to  
12 have a four-wheel vehicle. It may be a horse-drawn cart. The invention  
13 may be the horseless carriage. It doesn't mean that the way you steer or  
14 brake a carriage by pulling on the reins for the horse is applicable to the  
15 horseless carriage, braking a horseless carriage.

16 JUDGE HUGHES: I'm well aware of that, but what I -- I'd like you to  
17 answer my question.

18 MR. SPOONER: All right, what was your question?

19 JUDGE HUGHES: My question is one of skill in the art would or  
20 would not understand that this null-handling exception procedure is well-  
21 known? That you take -- there's a branching instruction, there's a  
22 comparison because that's what I'm understanding the background section of  
23 Click to teach.

24 MR. SPOONER: Null-handling procedure, some null-handling  
25 procedures are known. Our claimed one is not.

26

1 JUDGE HUGHES: I'm not talking about that. Is or isn't it known in  
2 the art to do some null-handling procedures?

3 MR. SPOONER: Null-handling procedures in general have been  
4 used, yes.

5 JUDGE HUGHES: Okay. And I guess then turning to Smith, Smith  
6 shows an emulator and a processor on the same chip, doesn't it, or in the  
7 same package?

8 MR. SPOONER: I don't know.

9 JUDGE HUGHES: All right. If you refer to, let's see, Smith, Figure  
10 1 and Figure 2.

11 MR. SPOONER: Okay.

12 JUDGE HUGHES: Okay, in Figure 1, Smith shows a microprocessor  
13 and an emulator chip in the same package, and I believe it refers to them as  
14 an emulator chip or an e-chip.

15 MR. SPOONER: Well, 12-2 is the emulator chip, 12 is listed as the  
16 emulator.

17 JUDGE HUGHES: Okay, and that --

18 MR. SPOONER: And the system is indicated as 10, so --

19 JUDGE HUGHES: Okay, and in Figure 2, the processor, 12-406, that  
20 shows a decoder as well as an arithmetic logic unit, right?

21 MR. SPOONER: 12-406 --

22 JUDGE HUGHES: That's part of the RISK processor at the top of the  
23 figure.

24 MR. SPOONER: I'm not finding it in the spec, though, to see what  
25 it's called. Oh, here it is, RISK core block?

26

1 JUDGE HUGHES: Yeah.

2 MR. SPOONER: Yeah, that's what it teaches.

3 JUDGE HUGHES: All right.

4 JUDGE BARRETT: My question is in Click at the bottom of column  
5 1 in lines 62 to 65, it says as will be appreciated by those skilled in the art, a  
6 test for a null pointer is implicitly performed when an attempt is made to  
7 load the contents associated with a pointer. Now, is -- how is that different  
8 than your decoder functions? It is because it doesn't have a base, base  
9 register or --

10 MR. SPOONER: All right, so you're referencing Click now?

11 JUDGE BARRETT: Click, yes.

12 MR. SPOONER: At column 1 --

13 JUDGE BARRETT: Column 1, just the last sentence in that --

14 MR. SPOONER: Well, if we look at -- are you suggesting the  
15 Examiner's table now and his explanation there?

16 JUDGE BARRETT: I'm just trying to understand looking at -- Click  
17 describes checking for a null -- test for a null pointer. And I'm just  
18 wondering since your decoder doesn't seem to be limited to any specific  
19 structure, why this doesn't disclose your encoder? What is the difference?

20 MR. SPOONER: Well, our Claim doesn't relate to a null pointer. It  
21 talks about the instruction decoder operating in response to a certain input,  
22 and then it does a comparison, and then as a result of that comparison, it  
23 does something else, it triggers something. I'm not -- the, the issue of  
24 whether Click discloses that hasn't really come up because the Examiner  
25 said -- admits that Click doesn't teach the specifically recited decoder. So  
26

1 that issue really hasn't been before us before. As to whether the cited  
2 portion of Click that you refer to has something that relates to our claimed  
3 instruction decoder, I can't say.

4 JUDGE BARRETT: Because that hasn't been argued.

5 MR. SPOONER: Right. This is something -- firstly, it has to be  
6 understood, I'm not the inventor. I have to rely on the arguments made by  
7 the Examiner, and then send them over to the inventor to get the inventor's  
8 comments as to what the Examiner has said, whether it makes sense or not.  
9 The inventor has said that what the Examiner has stated thus far makes no  
10 sense. Now, you're reading something that the inventors haven't really had  
11 an opportunity to even take a look at.

12 JUDGE HOMERE: But, counselor, I mean you do understand when  
13 the Rejection is made, it's over the -- the Claim is rejected over the  
14 combination of Click and Smith. Therefore, you are -- you were given -- I  
15 guess Appellant was given notice that of the two references -- in other  
16 words, Appellant had a fair opportunity to review the references in their  
17 entirety to assess what it did teach and what it did not teach, because I don't  
18 know that we can confine Examiner's rejection, the specific portions, relied  
19 upon by the Examiner as opposed to the references in their entirety.

20 JUDGE HUGHES: We're required to review for obviousness the  
21 teaching of the entire reference, the differences and the similarities. And  
22 these references are both before Appellants and that's what I was trying to  
23 get at. It seems to be Click teaches the functionality that you're trying to  
24 claim, maybe not all of it exactly the same way, but that's why we have a  
25 103 instead of a 102. So I -- when you say you're not going to address  
26

1 whether the, the teaching that this is known in the prior art because it wasn't  
2 before you, the Examiner said the -- in his response that the processor was  
3 taught and that a decoder was taught, that the specific functionality or  
4 structure -- excuse me, specific structure wasn't taught by Click and he uses  
5 the structure in the secondary reference, Smith, to teach that structure. So I,  
6 I -- if the functionality is in Click, I'm not understanding your argument, and  
7 that's what I've been trying to understand since you started. Is there -- it -- or  
8 does or doesn't Click teach the functionality that you're trying to claim, and  
9 you haven't -- the puzzle.

10 MR. SPOONER: And we have repeatedly said it does not because it  
11 doesn't have a decoder that's response, as our Claim states. It doesn't have a  
12 decoder which then compares, and it doesn't have a decoder which, if the  
13 comparison is in a certain fashion, does a certain additional thing.

14 JUDGE HUGHES: And, and you're relying on --

15 MR. SPOONER: Decoders in general are known , but it doesn't have  
16 the specific one that we've recited, that we've described, that we've claimed,  
17 and that's the problem I'm having here with your argument.

18 JUDGE HUGHES: Okay.

19 MR. SPOONER: You're, you're pointing out things in the prior art  
20 of -- in the background of Click. Now, I agree Click says that, but you're  
21 asking me whether Click's null pointer is the same thing as my invention. I  
22 don't know what Click's null pointer is. All I know is that Click doesn't  
23 show the structures and the claimed interrelationship of structures that do the  
24 benefit -- provide the benefit of our claimed invention. That's the problem  
25 I'm having with your argument.

26

1 JUDGE BARRETT: Any other questions? Anything else?

2 MR. SPOONER: Yes, sir. We should also -- the Board should also  
3 understand that what the Examiner is doing is picking pieces from Click's  
4 prior art and then saying that even though Click has a different way of  
5 solving the problem of the prior art, combining it with that. The Board  
6 under the KSR case is not permitted to merely pick and choose elements  
7 from various references and then combine them in the manner of the claimed  
8 invention. KSR specifically says -- because otherwise in a chemical case,  
9 you could just combine any one of the number of elements from the periodic  
10 table and say these are all known, their properties are all known, therefore,  
11 it's obvious to combine them. There is nothing patentable in the chemical  
12 composition field, and that's clearly incorrect. What -- there has to be some  
13 reason, motivation. Our specification -- excuse me, our Appeal Brief and  
14 the Reply Brief have consistently set out the fact of what the Examiner's  
15 burden is. And the Board has to look at the Examiner's rationale to see if not  
16 only he's identified where the -- he's met his burden, i.e., identified where  
17 the prior art shows the claimed elements and claimed interrelationships. If  
18 it's in one reference, it's a 102, if it's not in one reference, then it's at least a  
19 103. The Examiner has that burden; he hasn't met the burden here.

20 Additionally, to establish a prima facie case, the Supreme Court said  
21 that he has to provide some analysis, some rationale basis, for picking and  
22 choosing elements and combining them. He's not done that. He's made  
23 admissions on the record upon which the Appellant has relied throughout  
24 prosecution. So, he's bound by those admissions I believe. Clearly, the  
25 Board is capable of looking at those, deciding if he made a rash admission,  
26



1 an uncorrected mission correcting his rationale, you can look at it afresh,  
2 but Appellant can only operate based upon the record that's before him, the  
3 Rejection that's been made by the Examiner. And here, he's not shown, he's  
4 not met his burden of proof in terms of showing where the claimed  
5 interrelationships are. He's not met his burden of proof by providing the  
6 required analysis. So I don't believe that the Board can uphold the  
7 Examiner's rejection, it's clearly improper.

8 JUDGE HUGHES: Okay, thank you.

9 MR. SPOONER: Thank you, gentlemen.

10 Whereupon, the proceedings, at 1:51 p.m., were concluded.